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| 10/517,472 | 12/07/2004 | Joachim Wilhelm Hellmig | NL 020561 | 6125 |

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BRIARCLIFF MANOR, NY 10510

EXAMINER

HEYI, HENOK G

ART UNIT

PAPER NUMBER

2627

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

| | |
|-------------------------------|--------------------------------|
| Application No. 10/517,472 | Applicant(s) HELLMIG ET AL. |
| Examiner Henok G. Heyi | Art Unit 2627 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10/29/07
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Response to Argument

Applicant's argument that the reference used to reject claim 1 teaches that the thickness of the intermediate (spacer) layer 15 is determined, not in dependence on the refractive index, but instead in dependence on a numerical aperture NA of the objective lens as claimed in the application is respectfully traversed. The reason being, since numerical aperture is dependent on refractive index itself, to say the thickness of the spacer layer depends on numerical aperture could obviously mean thickness of the spacer layer depends on the refractive index.

In applicant's second argument, applicant asserts that the thickness of the spacer layer should be in a range of 20 - 30 μ m. The reference used to reject applicant's claim teaches a thickness of an intermediate layer in the range of 1 - 50 μ m. It is clearly obvious that this range is inclusive of the range specified by applicant and reads well on the claimed subject matter. Further more, please see case law In re Reven, 156 USPQ 679 (CCPA 1968).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1 & 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al EP 1172811 A2 (Kojima hereinafter) in view of Martynov et al US 2003/0058777 A1 (Martynov hereinafter).

Regarding claim 1, Kojima teaches a dual-stack optical data storage medium for at least read out using a focused radiation beam with a wavelength λ , between 400nm and 410nm (light of a wavelength in a range of 390nm to 430nm, para [0046]) and an Numerical Aperture (NA) between 0.84 and 0.86 (lens with a numerical value of 0.85, para [0046]), entering through an entrance face of the medium during read out (with a laser beam incident from the first substrate, para [0044]), comprising: a substrate with present on a side thereof (disk shaped transparent substrate, para [0045]): a first stack of layers named L0 comprising a first information layer (the first information layer includes a dielectric layer, an interface layer and a reflective layer, para [0047]), a second stack of layers named L1, comprising a second information layer, L1 being present at a position closest to the entrance face and L0 more remote from the entrance face than L1, a radiation beam transparent spacer layer between L0 and L1, a radiation beam transparent cover layer between the entrance face and L1 (a second information

layer disposed between the first information layer and a second substrate and an intermediate layer disposed between the first information layer and the second information layer, para [0044]) a transmission stack named TS0 with a thickness d_{TS0} and an effective refractive index n_{TS0} containing all layers between L0 and the entrance face (as the first substrate becomes thinner, the numerical aperture of an objective lens can be increased, para [0046]), a transmission stack named TS1 with a thickness d_{TS1} and an effective refractive index n_{TS1} containing all layers between L1 and the entrance face (the thickness of the second substrate, [0046]). But, Kojima does not explicitly and specifically teach the spacer layer has a thickness selected from the range 20 - 30 μ m, the thickness d_{TS0} in dependence on the refractive index n_{TS0} and the thickness d_{TS1} in dependence on the refractive index n_{TS0} . However, Martynov teaches thickness of a transparent layer in a range of 120-30 μ m (page 6 para [0067]) depending on its refractive index (page 5 para [0057]).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the thickness of the transmission layers of Kojima to be dependent on the refractive index and be in the range of 20-30 μ m. The modification would have been obvious because of the benefit of avoiding coherent optical cross-talk from the reflection as thought by Martynov.

Regarding claim 3, Kojima teaches an optical data storage medium according to claim 1, wherein n_{TS0} and n_{TS1} both have a value of 1.6 ($1.7 \leq n_{TS} < 2.5$, para [0052]) and the following conditions are fulfilled: $95\mu\text{m} < d_{TS0} < 105\mu\text{m}$ and $70\mu\text{m} < d_{TS1} < 80\mu\text{m}$ (the thickness of the substrates preferably in a range of 10 μ m to 700 μ m, para [0046]).

Regarding claim 4, Kojima teaches an optical data storage medium according to any one of claims 1, wherein the spacer layer thickness is 25 μ m or substantially close to 25 μ m and the cover layer thickness is 75 μ m or substantially close to 75 μ m (the thickness of the intermediate layer is in the range from 1 μ m to 50 μ m, para [0075]).

Regarding claim 5, Kojima teaches a use of an optical data storage medium as claimed in claim 1, for reliable data read out from both the first information layer and the second information layer (first information layer and second information layer, para [0043] to [0047]).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima in view of Martynov as applied to claim 1 above, and further in view of Spruit et al. US

2001/0030932 A1 (Spruit hereinafter) and Yukumoto et al. US 2001/0053122 A1 (Yukumoto hereinafter).

Regarding claim 2, Kojima teaches a dual stack optical data storage medium but it doesn't specify about the radius of the medium. However, Spruit discloses the size of the radius for DVD-ROM to be from 22.3 to 23.5mm (Spruit para [0006]). Still, both Kojima and Spruit fail to specify clearly the maximum deviation of the thickness of the layers. However, Yukumoto teaches that the deviation of the thickness has to be limited to 2.3 μ m (Yukumoto para [0031]). Therefore, the combined teaching of Kojima, Spruit and Yukumoto as a whole would have rendered obvious to have a dual disc with the given size of radius and deviation range of the stack thickness.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henok G. Heyi whose telephone number is (571) 270-1816. The examiner can normally be reached on Monday to Friday 8:30 to 6:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HGH
Patent Examiner
11/19/2007


TAN DINH
PRIMARY EXAMINER

11/26/07